Appendices

Appendix A: Bicycle Needs Analysis
Appendix B: Methodology Memorandum
Appendix C: Collision Trends & Profiles
Appendix D: Maps by Planning Area
Bicycle Needs Analysis

The BNA evaluates connectivity of Census blocks within biking distance (3.1 miles, approximately a 30-minute ride) of one another, and then assesses the number and types of destinations available within each of those blocks. Blocks are only considered connected if there is an unbroken low-stress connection between them. In other words, even a short stretch of stressful biking negates a potential connection. Last, the BNA considers detour: if a low-stress route goes more than 25% out of the way compared to a direct route, that low-stress route is not considered available.

The BNA scores each block based on the proportion of destinations an Interested but Concerned rider can access. If there are five schools in biking distance, but only two are on a low-stress network, the block scores worse than if all five were connected. The total scores shown are the sum of scores in across different types of destinations (e.g., retail, jobs, etc.), and a higher overall score means the area is more connected on the low-stress bicycle network. Scores calculated on an individual Census block level enable planners to see connectivity at a granular level. The results later presented here are aggregated to the four Alameda CTC planning areas.

In addition to showing the existing connectivity of a bicycle network, the BNA can help visualize the impact of planned bicycle improvements from existing communities’ plans. These results are shown in planning area focus sections below. The BNA results can also be used to examine connectivity around particular destinations of countywide significance such as transit stations and activity centers.

Local BNA Maps

Local bicycle connectivity maps for each jurisdiction are provided on the following pages. Maps for each jurisdiction are provided displaying:

- Existing Bicycle Network Analysis
- Planned Bicycle Network Analysis
- Changes in BNA Scores
Existing BNA Scores

Alameda

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Planned BNA Scores

Alameda

Planned BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Changes in BNA Scores

Alameda

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Existing BNA Scores

Albany

Existing BNA Scores
90 - 100
80 - 90
70 - 80
60 - 70
50 - 60
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10

Other
○ BART Station
○ Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Planned BNA Scores

Albany

Planned BNA Scores:
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10
- Other

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Changes in BNA Scores

Albany

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Planned BNA Scores

Berkeley

Planned BNA Scores

90 - 100
80 - 90
70 - 80
60 - 70
50 - 60
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10

Other

- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Existing BNA Scores

Dublin

Existing BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Planned BNA Scores

**Dublin**

**Planned BNA Scores**
- **90 - 100**
- **80 - 90**
- **70 - 80**
- **60 - 70**
- **50 - 60**
- **40 - 50**
- **30 - 40**
- **20 - 30**
- **10 - 20**
- **0 - 10**

**Other**
- BART Station
- Amtrak Station
- **BART Lines**

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan

Jacob Nigro  |  February 15, 2019  |  C:\Users\jnigro\OneDrive - Toole Design Group\CTC_PDX_rebuilt.qgz
Changes in BNA Scores

Dublin

Changes in BNA Scores

- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20
- Other

Other:
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Changes in BNA Scores

Emeryville

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide Active Transportation Plan
Existing BNA Scores

Fremont

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan

- BART, ACE and Capitol Corridor Stations
- BART Lines
Planned BNA Scores

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide Active Transportation Plan
Changes in BNA Scores

Fremont

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20
- Other

Other
- BART, ACE and Capitol Corridor Stations
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide Active Transportation Plan
Existing BNA Scores

Hayward

Existing BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Planned BNA Scores

Hayward

Planned BNA Scores

- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other

- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Changes in BNA Scores
Hayward

Changes in BNA Scores
80 +
60 - 80
40 - 60
20 - 40
0 - 20
Other

○ BART Station
○ Amtrak Station
─ BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Existing BNA Scores
Livermore

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Planned BNA Scores

Livermore

Planned BNA Scores

- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other

- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Changes in BNA Scores
Livermore

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Existing BNA Scores

Newark

Existing BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Planned BNA Scores

Newark

Planned BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Changes in BNA Scores

Newark

<table>
<thead>
<tr>
<th>Changes in BNA Scores</th>
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<tbody>
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<tr>
<td>20 - 40</td>
<td>Purple</td>
</tr>
<tr>
<td>0 - 20</td>
<td>Purple</td>
</tr>
</tbody>
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Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Existing BNA Scores

Oakland

Existing BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
### Planned BNA Scores

#### Oakland

<table>
<thead>
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<th>Planned BNA Scores</th>
<th>Color</th>
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<td>90 - 100</td>
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<tr>
<td>80 - 90</td>
<td>Orange</td>
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<tr>
<td>70 - 80</td>
<td>Red</td>
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<tr>
<td>60 - 70</td>
<td>Orange</td>
</tr>
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<td>50 - 60</td>
<td>Red</td>
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<tr>
<td>40 - 50</td>
<td>Orange</td>
</tr>
<tr>
<td>30 - 40</td>
<td>Red</td>
</tr>
<tr>
<td>20 - 30</td>
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<tr>
<td>10 - 20</td>
<td>Red</td>
</tr>
<tr>
<td>0 - 10</td>
<td>Orange</td>
</tr>
</tbody>
</table>

**Other**
- BART Station
- Amtrak Station
- BART Lines

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Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Changes in BNA Scores
Oakland

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Existing BNA Scores

Piedmont

**Existing BNA Scores**
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

**Other**
- BART Station
- Amtrak Station
- BART Lines

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*Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.*
Planned BNA Scores

Piedmont

Planned BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide Active Transportation Plan
Changes in BNA Scores
Piedmont

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide Active Transportation Plan
Existing BNA Scores

Pleasanton

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Planned BNA Scores

Pleasanton

Planned BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide Active Transportation Plan

February, 2019
Changes in BNA Scores
Pleasanton

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
⊙ BART Station
⊙ Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide Active Transportation Plan
Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Changes in BNA Scores
San Leandro

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Existing BNA Scores

Union City

<table>
<thead>
<tr>
<th>BNA Score</th>
<th>Percentage</th>
</tr>
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<tbody>
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<td>90 - 100</td>
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<td>80 - 90</td>
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<td>70 - 80</td>
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<td>60 - 70</td>
<td></td>
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<td>50 - 60</td>
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<td>40 - 50</td>
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<td>30 - 40</td>
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<td>10 - 20</td>
<td></td>
</tr>
<tr>
<td>0 - 10</td>
<td></td>
</tr>
</tbody>
</table>

Other

- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Planned BNA Scores

Union City

Planned BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Changes in BNA Scores
Union City

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20
- Other

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Existing BNA Scores

Urban Unincorporated Areas

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Planned BNA Scores
Urban Unincorporated Areas

Planned BNA Scores
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.
Changes in BNA Scores
Urban Unincorporated Areas

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20

Other
- BART Station
- Amtrak Station
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide Active Transportation Plan
Existing BNA Scores
Unincorporated East County

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan
Changes in BNA Scores
Unincorporated East County

Changes in BNA Scores
- 80 +
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20
- Other

Other
- BART, ACE and Capitol Corridor Stations
- BART Lines

Note: Bicycle facility data used for this analysis were those received from local staff, current as of March 2018.

Alameda CTC Countywide
Active Transportation Plan